

Section II: Remarks

The pending claims are claims 1-14.

Rejection of Claims and Transversal Thereof

In the June 23, 2009 Office Action:

claims 1-11 and 13-15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Nguyen (U.S. Patent No. 6,177,182) in view of Bennett et al. (PCT Publication No. WO 02/11984); and

claim 12 was rejected under 35 U.S.C. §103(a) as being unpatentable over Nguyen in view of Bennett et al. and in further view of Tao et al. (U.S. Patent No. 6,939,663).

These rejections are respectfully traversed. The patentable distinctions of the pending claims over the cited references are set out in the ensuing discussion.

Rejections under 35 U.S.C. §103(a)

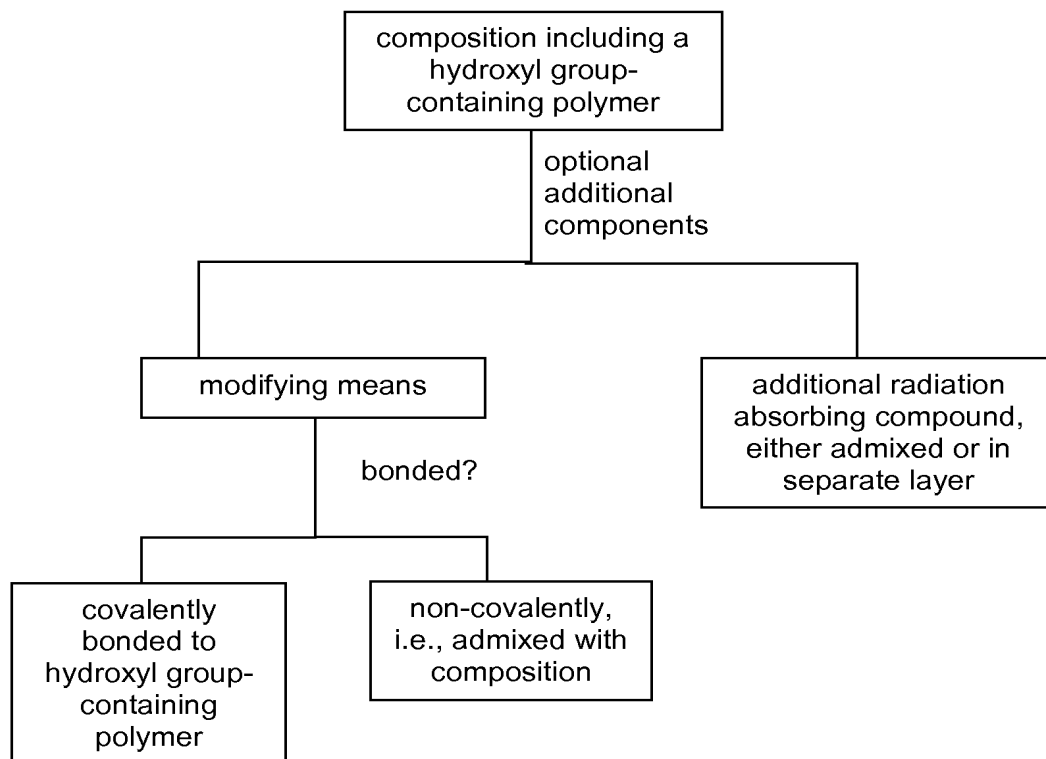
1. In the June 23, 2009 Office Action, claims 1-11 and 13-15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Nguyen (U.S. Patent Application No. 6,177,182) (hereinafter Nguyen) in view of Bennett (PCT Publication No. WO 02/11984) (hereinafter Bennett). Applicants traverse such rejection.

Nguyen discloses a method of synthesis of near infrared sensitive polymers and their use in various applications such as achieving long-life printing plates while avoiding phase separation of the ingredients in the coating formulation. As admitted by the Examiner, “Nguyen does not disclose the infrared chromophoric moiety is an indole cyanine dye combined with a benz[e]-indole cyanine dye” (see, the June 23, 2009 Office Action, page 3, lines 3-4).

Bennett does not cure the deficiencies of Nguyen.

Bennett is directed to the stabilization of the lithographic printing form precursors during the manufacturing process, and how to avoid the usual post-manufacture heat-treatment process, regardless of the electromagnetic absorbing properties of the coating polymer. More specifically, Bennett relates to a coating comprising a composition including a hydroxyl group-containing polymer. A preferred Bennett composition includes a modifying means to alter the dissolution rate of

the composition in a developer (see, page 5, lines 24-25). Bennett further teaches that when electromagnetic radiation is used for exposure, it is beneficial to use an additional radiation absorbing compound (see, page 14, lines 23-27). For ease of reference, applicants have prepared the following diagram to clarify the Bennett teaching.



With regards to the additional radiation absorbing compound, Bennett discloses examples of suitable compounds including carbon black, graphite, pigments, and dyes, wherein the pigment or dyes include phthalocyanine, squarylium, merocyanine, cyanine, indolizine, pyrylium or metal dithioline compounds (see, page 15, lines 30-31). Bennett discloses that the radiation absorbing compounds are either present in a separate layer or alternatively, are admixed in the composition (see, page 15, lines 24-25).

With regards to the modifying means, Bennett teaches that the modifying means may be (i) covalently bonded to the hydroxyl group-containing polymer or (ii) may be a compound which is not covalently bonded to the hydroxyl group-containing polymer, e.g., admixed with the composition. With regards to the former (i), which are disclosed at page 7, line 28 through page 9, line 3, functional groups Q are bonded to the hydroxyl group-containing polymer to form a polymer defined by $R(OH)_m(Q)_n$, wherein Q includes -O-SO₂-tolyl, -O-dansyl, -O-SO₂-thienyl, or -O-SO₂-naphthyl and -O-CO-Ph. Alternatively, or additionally the covalently bonded modifying means may comprise diazide moieties. Notably, the Examiner indicated in the June 23, 2009 Office Action that "Bennett et al. disclose[s] a near infrared absorption [dye] (abstract and page 15, lines 1-31) comprising of more than [sic] cyanine

dyes (. . . page 17, lines 1 – page 18, line 5) that are covalently bonded to the polymer (page 9, lines 2-3). Respectfully, the Examiner is intermixing two different teachings: the recited teachings at page 15 and 17 relating to the cyanine dyes are specific to the additional radiation absorbing compound described hereinabove (which is preferably admixed with the composition). The only compounds that are disclosed to be covalently bonded to the hydroxyl group-containing polymer are the functional groups Q and/or the diazide moieties (see, e.g., the diagram hereinabove)

With regards to the non-covalently bonded modifying means (ii), which are disclosed at page 6, line 1 through page 7, line 27, said non-covalent modifying means may be selected from a large number of compounds such as nitrogen-containing heterocyclic compounds (see, page 6, line 7 through page 7, line 5), including a cationic cyanine dye, and a compound of formula $Q_1-S(O)_q-Q_2$ (see, page 7, line 6-12). The non-covalently bonded modifying means are admixed with the composition.

According to the Examiner, “it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the near infrared absorption polymer of Nguyen to include one indole cyanine dye and also a benz[e]-indole cyanine dye because Bennett et al. teach the infrared radiation absorbing compounds aid in providing improvement to sensitivity of the coating.” Applicants vigorously disagree.

As noted hereinabove, contrary to the Examiner’s contentions, Bennett does not disclose cyanine dyes “that are covalently bonded to the polymer.” Instead, Bennett discloses cyanine dyes that are admixed with the polymer composition (or in a separate layer). The only bonding at the hydroxyl groups that Bennett teaches is the covalent bonding of the Q moieties (i.e., wherein Q includes -O-SO₂-tolyl, -O-dansyl, -O-SO₂-thienyl, or -O-SO₂-naphthyl and -O-CO-Ph) and/or diazide moieties. Accordingly, there is no reason for one skilled in the art considering Bennett to “modify the near infrared absorption polymer of Nguyen to include one indole cyanine dye and also a benz[e]-indole cyanine dye” as proposed by the Examiner.

Moreover, there is no limitation in Bennett regarding the number of absorbing and/or modifying compounds that can be incorporated in the composition, and one skilled in the art could *a priori* envisage, for example, the use of a modifying moiety attached covalently and absorbing compound comprised in a separate layer, or the admixture of cyanine and indolizine, etc. Consequently, Bennett does not motivate, teach or suggest at least two different pendent infra-red chromophoric moieties covalently bonded to the backbone of an alkali-soluble resin, wherein at least one of the pendent infra-red chromophoric moieties is an indole cyanine dye and the other of which is a benz[e]-indole cyanine dye, as defined in instant claim 1.

Moreover, the combination of Nguyen and Bennett does not teach or suggest all the limitations of instant claim 1 since the simultaneous covalent attachment of indole cyanine dye and benz[e]-indole cyanine dye is not taught or suggested by the documents. Only with hindsight and knowledge of the invention can someone select isolated and unrelated embodiments of these references and combine them to arrive at something close to the claimed invention.

According to Bennett, the use of a low-weight composition on the precursor improves the properties of the precursor, in particular by rendering the sensitivity of the precursor to imaging radiation less variable over time, i.e., such sensitivity or invariability only depends on the weight of the coating composition of the precursor. Therefore, the surprising effect disclosed by the present invention, that is to say, the improvement in the precursor stabilization as a consequence of using a polymeric dye containing at least two different infra-red chromophores, in particular at least one indole cyanine dye and one benz[e]-indole cyanine dye, wherein such chromophoric moieties are covalently bonded to an alkali-soluble resin, is not suggested by Bennett.

Further, as introduced hereinabove, the improved properties of the precursor are achieved in Bennett, by using a composition including a hydroxyl group-containing polymer, wherein the weight of said composition is less than 1.1 gm^{-2} . Therefore, the technical effect provided by the coating composition disclosed by Bennett depends on the use of a low weight coating but is not related to the groups attached to the hydroxyl group-containing polymer (see, Bennett, abstract, last paragraph of background information, beginning of summary of the invention, beginning of detailed description, claim 1, etc.).

In fact, Bennett teaches away from the present invention. Bennett teaches that absorbing dyes are narrow band absorbers and so have to be selected having regard to the wavelength of the radiator which is to be used for imaging (see, Bennett, page 16, lines 15-20). It is commonly known that indole cyanine dyes absorb in the range 750-790 nm whilst benz[e]indole cyanine dyes absorb in the range 800-850 nm. Therefore the addition of indole cyanine dyes to a composition already containing benz[e]indole cyanine dyes would not be expected to improve the sensitivity of the precursor when the laser emits for example at a wavelength of 830 nm since one of the dyes would not be absorbing (see, Bennett, page 15, line 13). In fact, it would be expected, by a person having ordinary skill in the art, to have the opposite effect because, as is known in the art and as taught by Bennett, cyanine dyes also act as “reverse insolubilizer compounds” and the addition of an indole cyanine dye not absorbing, or not absorbing significantly, at the wavelength of emission of the laser would mainly act to decrease the sensitivity of the precursor (see, Bennett, page 18, lines 2-5).

The experimental examples provided by Bennett do not move us closer to the present invention either, since the coating compositions described therein to support the better properties of the precursor only comprise one infra-red dye (IR Dye A), which is not bound to the polymer.

The purposes / problems to be solved by Nguyen and Bennett are therefore not aligned, and furthermore there is no teaching, suggestion, or motivation to combine the references, nor is it obvious to combine them without the hindsight of the present application.

In view of the above, applicants state that the Examiner has made an *ex post facto* analysis, resorting to hindsight reconstruction in an attempt to establish a *prima facie* case of obviousness. As noted by the instant application, the use of an soluble polymer having two specific distinct chromophores attached directly to the polymer backbone gives an unexpected and significant improvement in the thermal stabilization time of the precursor. However, one skilled in the art considering Nguyen in view of Bennett would never recognize this advantage.

Accordingly, it is submitted that claim 1 is not obvious in view of the cited prior art nor claims 2-11 and 13-14, which depend directly or indirectly on claim 1. Therefore, applicants respectfully request reconsideration and withdrawal of the obviousness rejection.

2. In the June 23, 2009 Office Action, claim 12 was rejected under 35 U.S.C. §103(a) as being unpatentable over Nguyen in view Bennett and in further view of Tao et al. (U.S. Patent No. 6,939,663) (hereinafter Tao). Applicants traverse such rejection.

As introduced hereinabove, the disclosure of Nguyen in view of Bennett does not suggest the near infrared absorption polymer defined by the claimed invention. Tao does not cure these deficiencies. Specifically, Tao does not motivate, teach or suggest a near infrared absorption polymer comprising at least two different pendent infra-red chromophoric moieties covalently bonded to the backbone of an alkali-soluble resin, wherein at least one of the pendent infra-red chromophoric moieties is an indole cyanine dye and the other of which is a benz[e]-indole cyanine dye. In fact, Tao is solely concerned with water soluble novolaks and their use in negative working and on-press developable plate precursors (therefore no alkaline development needed). Thus, the plate precursors of Tao are of a totally different technology to either Bennett or the present application.

Accordingly, there is no reason for one skilled in the art considering the three cited references to go in the direction of applicants' invention and as such, claim 12 is not obvious in view of the same. Withdrawal of the obviousness rejection of claim 12 is respectfully requested.

Petition for Extension of Time/Fees Payable

Applicants hereby petition for a two (2) month extension of time, extending the deadline for responding to the June 23, 2009 Office Action from September 23, 2009 to November 23, 2009. The fee of \$245.00 specified in 37 CFR §1.17(a)(2) for such two (2) month extension is hereby enclosed.


The total fee of \$245.00 is being paid by Electronic Funds Transfer. Authorization is hereby given to charge any deficiency in applicable fees for this response to Deposit Account No. 13-4365 of Moore & Van Allen PLLC.

Conclusion

Based on the foregoing, claims 1-14 are in form and condition for allowance. If any additional issues remain, the Examiner is requested to contact the undersigned attorney at (919) 286-8000 to discuss same.

Respectfully submitted,

MOORE & VAN ALLEN PLLC



Date: November 23, 2009

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